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EXAMINER

DANG, DUY M

ART UNIT PAPER NUMBER

2624

DATE MAILED: 08/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/065,869

Applicant(s)

YARGER ET AL.

Examiner

Duy M. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 5/30/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,11-22,25 and 26 is/are rejected.
- 7) ☒ Claim(s) 3,4,7-10,23,24,27 and 28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's amendment filed on May 30, 2006 has been entered and made of record.
2. Currently, claims 1-28 are pending.

### ***Response to Arguments***

3. Applicant's arguments filed on May 30, 2006 have been fully considered but they are not persuasive.

-It is noted that applicant has argued with regard to the rejections of claims 1, 3-5, 7-8, 11, 13-15, 17-18, 21, 23-25, and 27-28 under 35 USC § 102(e) based on Wahl's patent (USPN 6,359,960) as set forth in pages 12-14 of applicant's response filed on May 30, 2006 (Note that there was a typographical error in the response which referred to "Whal" instead of "Wahl"). Specifically, applicant's arguments are based on the ground of (a) "Wahl does not disclose the claimed first plane and a plurality of second images taken in planes orthogonal to the first plane" and (b) "different projection angles of Wahl is not the same as a plurality of planes orthogonal to a first plane".

-With regarding to (a), the examiner would like to direct applicant to FIGs. 1 and 2 of Wahl. The illustrated coordinate system R shown in figure 2 of Wahl refers to 3D (three-dimensional coordinate system) and representation of 3D image of patient's head which comprises three planes in which each plane is orthogonal to each other [see elements 1 and 5 of figure 1; col. 2 lines 4-5, 9-11, and 59-61; col. 5 lines 18-19 (note that volume data set refers to 3D image of patient's head); and col. 6 line 66 to col. 8 line 22]. For clarification, let's assume XYZ coordinate system presented coordinate system R [note that each plane (X-Y plane, X-Z plane, or Y-Z plane) does contain image represented 3D image data of patient's head], the X-Y

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plane refers to the so called first plane and both X-Z and Y-Z planes refer to the so called “planes orthogonal to first plane”. This analogy is also applicable to any one plane of X-Y, X-Z, and Y-Z planes referred as “a first plane” and the other two planes referred to “planes orthogonal to a first plane.” Moreover, figure 1 of Wahl does teach “first plane” and “a plurality of secondary image taken from planes orthogonal to the first plane.” The image obtained by the X-ray system (comprising X-ray source and detector as mentioned in col. 3 line 63 to col. 4 line 13) at focus point 4 refers to the first image plane or claimed first plane. Since X-ray system is moved on orbit K around the head 1, at positions 90 degrees and 270 degrees (clockwise direction from focus point 4), images obtained at those positions (90 and 270 degrees) constitutes image planes that are orthogonal to the image plane of image obtained at focus point 4. Therefore, those image planes containing images obtained at those positions (90 and 270 degrees) refer to the claimed “a plurality of secondary image taken from planes orthogonal to the first plane”.

-With regarding (b), it is noted that applicant has selected certain projection angles of Wahl and concluded that claimed “different projection angles of Wahl is not the same as a plurality of planes orthogonal to a first plane”. The examiner agrees that certain projection angles of Wahl is not the same as a claimed “plurality of planes orthogonal to a first plane”, but there are two projection angles 90 and 270 degrees in reference to zero degree angle or at focus point 4 of orbit K in figure 1 of Wahl meet claimed features that of “plurality of planes orthogonal to a first plane” as pointed out above.

### *Specification*

4. The following is a quotation of 37 CFR § 1.71(a):

The specification must include a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any

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person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.

5. The disclosure is objected to under 37 CFR § 1.71(a) because of the following reasons.

At paragraph [0020], it states “*Referring to FIGs. 1 and 2, one or more imaging devices 12 acquires a primary image 50 taken along plane (e.g., the x-y plane of FIG. 2) extending through a target body 52...acquires one or more series 56 of secondary images 54 taken at multiple planes orthogonal to the primary image 50 plane (e.g., the x-z plane of FIG. 2)...where primary image 52 is taken in the sagittal plane (looking from the left or right side of the body).*”

It is noted the such language is so inconsistent with itself. For example, (a)both numbered “50” and “52” refer to the so called “primary image”; (b)if a primary image 50 taken along x-y plane of FIG. 2, how come the primary image 50 plane refers to the x-z plane of FIG. 2? (c)are the *primary image 50* and *primary image 50 plane* similar or the same? (d)are *primary image 50 taken along plane (e.g., the x-y plane of FIG. 2)* and *primary image 52 is taken in the sagittal plane (looking from the left or right side of the body)* similar or the same?

It is also noted that such language is so consistent with applicant’s disclosed FIG. 2. For example, descriptive labels numbered at 50 and 52 represent two different elements according to FIG. 2 whereas both numbered 50 and 52 refer to the so called “*primary image*” in the specification.

Applicant's cooperation is requested to check the specification to the extent necessary for determining the presence of all possible minor errors and correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 2, 6, 12, 16, 22, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is noted each of these claims recites an equation including parameters denoted as "a", "b", and "c". However, each of these parameters a-c is not clearly defined as to what it refers to.

***Claim Rejections - 35 USC § 101***

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

9. Claims 11-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 11-20 define a storage medium embodying

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functional descriptive material i.e., program code. However, the claims do not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., “When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized” – Guidelines Annex IV). That is, the scope of the presently claimed storage medium can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on “computer-readable medium” in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 5, 11, 15, 21, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Wahl et al. (USPN 6,359,960. Art of record filed 6/11/04 and referred as “Wahl” hereinafter).

Regarding claim 1, Wahl teaches method of labeling orthogonal images (i.e., figures 1-2 and 5) comprising: identifying a primary image taken in a first plane (see figure 1 and col. 4 lines 14-22: note 3D volume data set acquired from the series of 2D projections; also see figure 2 for

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plurality of 2D projection planes denoted at P1-P4); identifying a plurality of secondary images taken in planes orthogonal to the first plane (see figure 1 and col. 4 lines 14-22; note 3D volume data set acquired from the series of 2D projections; also see figure 2 for plurality of 2D projection planes denoted at P1-P4); associating a label to a point in the primary image (see markers 6', 9', 6, 9, 6.1-6.4, 7.1-7.4, 8.1-8.4, and 9.1-9.4 mentioned in col. 4 lines 23-43 and figures 1-2); calculating a distance from the point to a line of intersection between the primary image and each secondary image in the plurality of images (see figures 2, 5 and abstract); and associating the label to a secondary image in the plurality of secondary images having a line of intersection with the primary image closest to the point (see figures 2, 5 and col. 6 lines 55-67 and col. 7 lines 47-67).

It is noted that claims 11 and 21 recite similar features called for in claim 1 above. Thus, claims 11 and 21 are also rejected for the same reasons as set forth above.

Regarding claims 5, 15, and 25, it is noted that these claims recite similar features called for in claim 1 with additional of claimed "first and second labels". The advance statements applied to claim 1 above are incorporated herein. Wahl further teaches labels (see markers 6', 9', 6, 9, 6.1-6.4, 7.1-7.4, 8.1-8.4, and 9.1-9.4 mentioned in col. 4 lines 23-43 and figures 1-2. Note that any two markers mentioned in this cited portion refers to the so called first and second labels).

#### ***Allowable Subject Matter***

12. Claims 2, 6, 22, and 26 are objected to as being dependent upon a rejected base claim and being rejected under 35 U.S.C. 112, 2nd paragraph set forth in this Office action, but would be allowable if rewritten (a)in independent form including all of the limitations of the base claim



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and any intervening claims and (b) to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

13. Claims 3-4, 7-10, 23-24, and 27-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten (a) in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest the claimed features as recited in claims 2, 6, 12, 16, 22, and 26.

The prior art of record fails to teach or suggest the claimed features as recited in claims 3-4, 7-8, 23-24, and 27-28.

The prior art of record fails to teach or suggest the claimed features as recited in claims 9, and 19.

The prior art of record fails to teach or suggest the claimed features as recited in claims 10 and 20.

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duy M. Dang whose telephone number is 571-272-7389. The examiner can normally be reached on Monday to Friday from 6:00AM to 2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dmd

8/06



**DUY M. DANG**  
**PRIMARY EXAMINER**